REMARKS/ARGUMENTS

Applicants have received the Office Action dated March 17, 2008 (hereinafter "Office Action"), wherein claims 1, 2, 6-22, 26-42, 46-62, 66-82, 86-101 and 103-105 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Yamada et al. (U.S. Patent No. 7,203,762, hereinafter "Yamada") in view of Munter (U.S. Patent No. 7,209,659, hereinafter "Munter"), and further in view of Battle et al. (U.S. Patent No. 7,088,762, hereinafter "Battle"). Applicants have not amended the claims. Based on the arguments presented herein, Applicants respectfully submit that all claims are in condition for allowance

I. THE REJECTIONS OF THE INDEPENDENT CLAIMS

In rejecting independent claim 1 under 35 U.S.C. § 103(a) as allegedly obvious over Yamada in view of Munter and further in view of Battle, it was acknowledged in the Office Action that Yamada does not teach

- balancing frame traffic through the switch using the plurality of logical ports[1]
- frames in a trunked group are delivered in order[2]
- any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group[3]

It was subsequently alleged in the Office Action, however, that Munter teaches the first claim element at col. 5, lines 32-34, and the remaining two claim elements at col. 6, lines 24-29.[4] Applicants respectfully traverse the characterizations of the cited art, noting that at least some of the groupings of ports and links described in Munter (and relied upon in the rejection of claim 1) are not trunked groups; that Munter does not teach or suggest combining balancing traffic over multiple logical ports within a single switch *and* over trunked physical ports of one of the logical ports within the *same* switch; that Munter does not teach or suggest balancing frame traffic across logical ports; and that Munter does not teach or suggest that frames within a trunked

[1] *See* Office Action, ¶ 2, p. 3.
[2] *Id.*
[3] *Id.*
[4] *See* Office Action, ¶ 2, p. 4.

group are delivered in order despite the claim requirement that any frames exiting the switch via the physical ports of the trunked group are balanced over the physical ports of the trunked group.

Applicants note that independent claim 1 requires both "balancing frame traffic through said switch using said plurality of logical ports," and "any frames exiting said switch via physical ports forming a trunked group being balanced over said physical ports forming the trunked group." Claim 1 further requires "at least one logical port having corresponded a plurality of physical ports to form a trunked group." Thus, claim 1 requires two tiers of frame traffic balancing. At the first tier, frame traffic is balanced across logical ports defined within a switch and corresponded to physical ports within the switch. At the second tier, frame traffic directed to at least one of the logical ports (as a result of the frame traffic balancing performed across logical ports) is further balanced across multiple physical ports that correspond to the one logical port, wherein the physical ports are organized as a trunked group.

By contrast, Munter teaches that,

> Traffic is split evenly and nondiscriminatory at each POP switch R_i to access all N parallel backbone networks equally, for example based on a striping algorithm designed to balance the traffic while preserving flow packet order.[5]

Applicants note that this citation refers to the POP switches of figure 4, which are connected to the backbone networks via "trunks" 26-29. While such "trunks" do represent collections or groupings of links, the trunks are not "trunked groups" within the meaning of independent claim 1. Applicants submit that one of ordinary skill reading claim 1 in light of the specification would recognize that a trunked group is a grouping of links that allows frames to take one of a variety of parallel paths and still be delivered in order at the desired destination.[6] While each of the individual links of each of trunks 26-29 taught by Munter couples to a single POP switch (*e.g.*, trunk 26 couples to POP switch R1), each trunk fans out at a distribution point (*e.g.*, distribution point K1) into separate links that each couples to a **different** core switch. Thus, the links within each trunk do not each provide a parallel path to a common destination, and therefore do not form the trunked groups required by independent claim 1. Because the links

[5] Munter, col. 6, lines 25-29
[6] *See* specification of the subject application as published, (hereinafter, "Specification"), p. 2, ¶ [0025].

taught by Munter are not part of a trunked group, the cited text from Munter does not teach or even suggest "any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group," as alleged in the Office Action.

Further, even if (for the sake of argument only) the fanned-out links of a POP switch are analogized to the physical ports of the trunked group required by claim 1, the traffic balancing described in Munter takes place within a POP switch,[7] whereas the balancing alleged in the Office Action to include the use of logical ports[8] takes place elsewhere than the POP switch. Applicants note that the purported logical port is cited in the Office Action as S1R1, but link S1R1 is connected between OXC 40 and core switch S1. The SIR1 link is not connected to the POP switch. Therefore, the purported logical ports cannot be balanced by the same switch as balances the purported trunk group, given that the purported logical port and the purported trunk group are not both connected to the same switch. For at least these reasons, Applicants submit that Munter fails to teach or suggest the two-tiered **combination** of first balancing frame traffic exiting a switch across multiple logical ports, and then balancing frame traffic across trunked physical ports within at least one of said logical ports exiting the **same** switch, as required by independent claim 1.

Applicants also note, with regard to the allegation that Munter teaches the use of logical ports in the balancing required by independent claim 1, that Munter in fact merely teaches that,

> Each logical port link S1R1 practically includes a "bundle" of wavelength links which in fact is a bundle of ports. The links may have different capacity as long as the un-symmetry, or the imbalance is taken into account. This is done by a load balancing algorithm, as known in the art.[9]

While this citation does *mention* a "logical port link," Applicants respectfully submit that the recited "bundle" of wavelength links is not the logical port link S1R1, but rather is the description of the link between the OXC and core switch S1. Applicants reference figure 6 of Munter, which more clearly shows the optical cross connect performed in the OXC due to the multiple wavelength properties of the signals in Munter's preferred embodiment. Applicants

[7] *See* Munter, col. 5, lines 17-34, and Fig. 4.
[8] *See* Office Action, ¶ 2, p. 4.
[9] Munter, col. 5, lines 30-34.

further reference col. 11, lines 40-46, which describes the no-colors or single wavelength variation of figure 6. In this variation, there are N ports on each of the edge nodes and core switches, and a single fiber pair connects each possible node/core pair. By using multiple wavelengths, only a single physical link is required, with each end having the aforementioned logical ports where the multiple wavelengths are separated. But Applicants note that in that instance the flows on the single physical link to core switch S1 have originated at four different POP switches per figure 4. Thus any logical balancing would be done over flows from four **different** switches, not flows inside a **single** switch, as required by independent claim 1. Applicants therefore submit that when figure 4 is properly viewed in light of the remaining teachings of Munter, the recitation that the logical port link S1R1 practically includes a "bundle" of wavelength links is an erroneous teaching contrary to the remainder of Munter, and thus should be accorded little weight. As noted above, when properly analyzed, the link between the OXC and core switch S1 cannot be used to meet the claim language.

At least for all of the above-described reasons, Applicants submit that neither Yamada nor Munter teaches or even suggests all of the limitations of independent claim 1. Further, none of the other art cited (including Battle) overcomes the deficiencies of Yamada and Munter. Applicants therefore respectfully submit that independent claim 1 is not rendered obvious over the cited art under 35 U.S.C. § 103(a), and respectfully request withdrawal of the obviousness rejection of the claim.

Regarding independent claims 21, 41, 61, 81, and 101, Applicants note that these claims have limitations similar to those of independent claim 1, and were rejected in the Office Action for reasons similar to those presented in the rejection of independent claim 1.[10] Applicants thus respectfully submit that for at least the same reasons as those presented above with regard to the rejection of independent claim 1, independent claims 21, 41, 61, 81 and 101 are also not rendered obvious by the cited art (either alone or together) under 35 U.S.C. § 103(a). Applicants therefore respectfully request withdrawal of the obviousness rejections of these claims.

[10] *See* Office Action, ¶ 2, pp. 5-7 (claim 21), 7-8 (claim 41), 8-9 (claim 61), 10-11 (claim 81) and 11-12 (claim 101).

II. THE REJECTIONS OF THE DEPENDENT CLAIMS

With regard to the rejections of dependent claims 2, 6-20, 22, 26-40, 42, 46-60, 62, 66-80, 82, 86-100 and 103-105, Applicants note that because each of these claims includes all of the limitations of the independent claims upon which they respectively depend, Applicants submit that these claims are also not rendered obvious under 35 U.S.C. § 103(a) for at least the same reasons as those presented above with regard to independent claims 1, 21, 41, 61, 81 and 101. Applicants therefore respectfully request withdrawal of the obviousness rejections of these claims.

Additionally, with regard to the rejection of dependent claim 17, Applicants respectfully note that it was alleged in the Office Action that, "Yamada further teaches a selected physical port is selected based on a source tag and/or a destination tag added to the frame after the frame enters switch **[Col. 8, lines 8-13]**."[11] Applicants respectfully traverse the rejection, and respectfully submit that claim 17 has been improperly examined in a piecemeal fashion, resulting in a failure to consider all of the limitations of the claim, and further thus resulting in a failure to examine the claim as a whole.[12] Applicants further note that, in response to Applicants' previously submitted arguments, it was stated in the Office Action that,

> Applicant argues that Yamada does not teach selecting a physical port based on a tag added to the frame after the frame enters the switch. However, examiner disagrees. Yamada clearly teaches adding the tag after the frame enters the switch and selecting a physical port based on the tag. Applicant argues that Yamada makes a selection of physical port before the tag is added, the opposite of the claim requirement where the selection is based on the tag. However, examiner disagrees. The claim requires a selection of physical port based on tag added to the frame after the frame enters the switch. Yamada teaches applying a label and transmitting through appropriate physical port based on the label [See Fig. 3]."[13]

Applicants respectfully traverse the characterization of Applicants' previously submitted arguments, noting that Applicants did **not** argue that Yamada makes a selection of a physical

[11] Office Action, ¶ 2, p. 5 (bolding in original).
[12] "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." MPEP § 2141.02-I (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) and *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)) (underlining in original).
[13] Office Action, Response to Amendment, p. 2.

port before the tag is added. Applicants in fact argued that Yamada only teaches a single selection of a physical port, whereas dependent claim 17 requires two successive port selections, wherein the source and/or destination tag is added **before** the **second** selection, which is based upon (at least in part) the added tag. In order to more clearly explain this distinction, Applicants have included below the arguments previously presented, with expanded explanations added in order to more clearly describe the deficiencies of Yamada relative to dependent claim 17.

Applicants respectfully note that claim 17, which depends upon independent claim 1, adds the requirement, "wherein a **selected** physical port for at least one of said frames exiting said switch is **further** selected based at least in part on a source tag and/or a destination tag added to said frame after said frame enters said switch" (emphasis added). The selection required by claim 17 is a **further** selection that is applied to a port that has **already** undergone a selection, *i.e.*, the further selection is applied to a port that has already been select**ed** (past tense) in some manner. Thus, the physical port of claim 17 undergoes not one, but at least **two** selections. For example, the physical port may be initially selected as part of a group of physical ports, such as a trunked group, and then subsequently selected as the physical port within the trunked group that will be used to transmit the frame.

When the claim **as a whole** is considered, it is clear that the claim elements of dependent claim 17 are not all taught by Yamada. More specifically, Yamada teaches,

> The address forwarding processor 11 searches the layer-2 routing table T3s to determine whether it has an entry for the received frame's layer-2 destination address (00:aa:bb:01:02:01). If the destination address in question is found, then the address forwarding processor 11 makes the TE unit 12 (described later) look up the layer-2 flow condition table T5 to extract an appropriate virtual sending port. With this virtual sending port (port "100" in the present case), the path data manager 13 **consults the L1 mapping table T6 to find a corresponding MPLS-side physical port**, which is PM1 in the present context. **Based on the above MPLS-side physical port, the labeling unit 14 produces an L1 label for transport over L1 LSP#1**, thereby creating an MPLS frame F described earlier in FIG. 2. **This MPLS frame F is transmitted to the MPLS network 5 through the MPLS-side physical port PM1**.[14]

[14] Yamada, col. 7, line 65 through col. 8, line 13 (emphasis added).

Yamada thus teaches receiving a frame, extracting a virtual sending port from the received frame, mapping the virtual sending port to a single corresponding physical port, adding a label based upon the mapped physical port, and transmitting the frame to the mapped physical port. Applicants respectfully submit that there are two possible interpretations of the above-described teaching by Yamada:

1. That the port is selected when mapped.
2. That the port is selected based upon the label added to the frame.

a. Interpretation 1: The Port is Selected When Mapped

Applicants respectfully submit that if the port is selected when mapped, then the selection is not "based at least in part on a source tag and/or a destination tag added to said frame" (as required claim 17), and thus Yamada teaches that **only one selection is performed.** This is in contrast to the "**further** selection" performed upon an already "select**ed** physical port," *i.e.*, **two** selections, also as required by dependent claim 17 (emphasis added).

b. Interpretation 2: The Port is Selected Based on the Label Added to the Frame

If, on the other hand, the port is selected based upon the label added to the frame, then the addition of the label is either the selection itself, or merely a reflection of the results of the mapping of the port; in either case, only a **single selection based on a single criterion** has been performed, not a "**further** selection" (**different** from the previous selection) on an already select**ed** port (again as required by the claim; emphasis added).

Applicants thus submit that at least because Yamada does not teach or even suggest two, distinct selections of a physical port, wherein the second further selection of the physical port is based at least in part on an added source and/or destination tag (*i.e.*, a tag is added before the second selection), Yamada does not teach or even suggest all of the limitations of the claim. Further, none of the cited art, either alone or together, overcomes the deficiencies of Yamada. Applicants thus again submit that dependent claim 17 is not rendered obvious under 35 U.S.C. § 103(a), and respectfully request withdrawal of the rejection of the claim.

Applicants further note that dependent claims 19, 37, 39, 57, 59, 77, 79, 97 and 99 include limitations similar to those of dependent claim 17, and were rejected on the same grounds similar as claim 17.[15] Applicants thus submit that dependent claims 19, 37, 39, 57, 59, 77, 79, 97 and 99 are each also not obvious over the cited art under 35 U.S.C. § 103(a) for at least the same reasons as those presented with regard to the rejection of dependent claim 17. Applicants therefore again respectfully request withdrawal of the obviousness rejections of these claims.

CONCLUSION

Applicants respectfully request reconsideration and that a timely Notice of Allowance be issued in this case. While Applicants believe that no additional extensions of time or fees are required, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Wong Cabello's Deposit Account No. 50-1922, referencing docket number 112-0134US.

Respectfully submitted,

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[15] *See* Office Action, ¶ 2, p. 5.